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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,045	02/12/2002	Sang-min Lee	401574/Y.P. LEE	2409
23548	7590	07/09/2004	EXAMINER	
LEYDIG VOIT & MAYER, LTD 700 THIRTEENTH ST. NW SUITE 300 WASHINGTON, DC 20005-3960			VIJAYAKUMAR, KALLAMBELLA M	
			ART UNIT	PAPER NUMBER
			1751	

DATE MAILED: 07/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/073,045

**Applicant(s)**

LEE ET AL.

**Examiner**

Kallambella Vijayakumar

**Art Unit**

1751

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 11-16, 18-21, 23-24, 28-34 is/are rejected.
- 7) ☒ Claim(s) 9, 10, 17, 22 and 25-27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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*Detailed Action*

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- Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.
- The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A (1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the examiner on form PTO-892 has cited the references, they have not been considered.

The information disclosure statement (IDS) submitted on 08/13/2002 has been considered and acknowledged by the examiner.

- The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

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*Claim Rejections - 35 USC § 103*

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
1. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al (WO99/57212 or US 6,680,125).

Sasaki et al disclose forming a hard-coat coating over a plastic lens using a composition comprising (a). a hydrozylate of alkoxysilane, (b). oxides of Si, Sn Sb, (c). a binder of polyurethane or alkoxide and (d). a curing agent. Sasaki et al further disclose that the alkoxysilanes could be used either alone or in combination, and the preferred alkoxysilanes included phenyltriethoxysilane and  $\gamma$ -glycidoxypolytrimethoxysilane { limitations of instant claims- 1&3},  $\gamma$ -mercaptopolytrimethoxysilane {limitations of instant claims-1 & 2} and dimethyldimethoxysilane {limitations of instant claims - 4 & 5}. The alkoxysilanes were dissolved in an aqueous solvent containing alcohols such as methanol and partially hydrolyzed presence of inorganic acid catalyst of either hydrochloric acid or sulfuric acid (Abstract, Col-3, Line-46 to Col-4, Line-14, Col-5, Lines-25-31). Sasaki et al further teach the varying the ratio of various components in the composition of the coating solution, and the ratio of alkoxysilane to the solvent or the acid given in the examples would meet the limitation of instant claims 6 and 7 (Col-7, Example-1, Col-8, Example-3, Col-9, Example-5).

Sasaki et al do not disclose the break down ratio of the dimethyldimethoxysilane in the coating composition, but Sasaki et al teach the use of the mixture of alkoxysilanes and the variation of the component ratios and their benefits (Col-3, Line-57; Col-5, Lines: 3-34).

It would have been obvious to an ordinary skilled artisan in the art to make modifications to the coating composition of Sasaki et al by varying the alkoxysilanes and their ratios to benefit from improved scratch resistance and transmittance, because Sasaki is suggestive of these modifications, and with the expectation of reasonable success in obviously arriving at the limitations of instant claims by the applicants.

2. Claims 1, 3-7, 8, 11-16, 18-21, 23-24, 28-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al (US Patent 5,449,558).

Hasegawa et al disclose an optical article comprising of a layer of hard coating layer of high refractive index, a low refractive index layer and a self-healing interlayer, wherein the high refractive index layer comprising binder of phenoxy resin and dispersed conductive oxides such as stannic oxide, that would meet the limitation of a transparent conductive layer containing metal oxide in the instant claims 16 and 24, and the antireflective layer containing fluoro-polymer would meet the limitation of protective layer in the instant claims 1, 8, 16, and 24. Hasegawa et al teach the various options in the fabrication of these coatings on a substrate, while the disposing of the anti reflection film in front of a CRT display would meet the limitation of instant claims 31-34. Hasegawa et al further teach the use of silane coupling in the coating composition such as vinyltriethoxysilane,  $\gamma$ -glycidoxypyltrimethoxysilane and phenyltriethoxysilane {limitations of instant claims 1, 3, 8, 11, 16, 18, 24, 28 and 30},

dimethyldimethoxysilane and dimethyldiethoxysilane {limitations of instant claims 4-5, 12-13, 19-20 and 29},  $\gamma$ -mercaptopropyltrimethoxysilane {limitations of instant claims 1, 2, 8, 10, 16, 17, 24, and 27} and heptadecafluorodecyltrimethoxysilane {limitations of instant claims 8, 9, 21, 24, and 26} and further disclose that these alkoxysilanes may be used either alone or in combination as a mixture (Ref: Col-3, Line-30 – Col-4, Line-23; Col-6, Lines: 53-55; Col-7, Lines: 19-Col-8, line-47). The films were coated from the coating compositions by spray coating {limitation of instant claims 8, -15, 22, 24, and 25}.

Hasegawa et al do not disclose the use of any solvent and/or using a an acid as a catalyst for hydrolysis of the alkoxysilane in the composition of the coating solution, although these are well known and would have been obvious to use them in the formulation.

Sasaki et al (WO99/57212) teach making the coating compositions, containing the very same alkoxysilanes used by Hasegawa et al, in water-alcohol system and further adding mineral acids as catalyst for facilitating hydrolysis and to benefit from improved adhesion, and coating the films as disclosed in the Rejection-1 as above.

It would have been obvious to an ordinary skilled artisan in the art to make modifications to the composition of Hasegawa by varying the composition of alkoxysilanes in the coating compositions based on the needs of the application to benefit from improved adhesion and transparency to light, because Hasegawa is suggestive of such modifications and further improvise coating composition with the alcoholic solvents and the acid catalysts to benefit from improved bonding of the films, because all the teachings are in the analogous art and with the expectation of reasonable success in obviously arriving at the limitations of instant claims by the applicants.

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3. Claims 1, 3-5, 8, 11-13, 16, 18-21, 23-24, 28-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hokazono (US Pub# 2001/0050741) in view of Hasegawa et al (US Patent 5,449,558).

Hokazono et teach antireflection film comprising of a transparent support and a hard coat layer comprising of a metal oxide and a polymeric binder upon which a low refractive index layer was coated. The low refractive index coating comprised of a hydrolysate of an organosilicone and/or a partial condensate of the organosilicone, wherein the and the preferred organosilicones included vinyltrimethoxysilane,  $\gamma$ -glycidoxypopyltriethoxysilane, and phenyltrimethoxysilane {limitations of instant claims 1, 3, 8, 11, 16, 18, 24, 28 and 30}, dimethyldimethoxysilane and dimethyldiethoxysilane {limitations of instant claims 4-5, 12-13, 19-20 and 29},  $\gamma$ -mercaptopropyltrimethoxysilane {limitations of instant claims 1, 2, 8, 10, 16, 17, 24, and 27} and heptadecafluorodecyltrimethoxysilane {limitations of instant claims 8, 21, 24,}. Alcohols and hydrocarbon solvents were used to make the solutions along with acid catalysts, and their ratios would meet the limitations of instant claims 6-7 and 14-15. The coating was carried out by techniques such as dip coating, and curtain coating. (Sections: Abstract, 0054-0055, 0070, 0077-0078, 0090, 0095-0112, 0115, 0122, 0139-0142, 0147, 0149, 0154, 0156-0186).

Hokazono et al teach all the aspects of the limitations of the listed instant claims by the applicants, but does not disclose the use of heptadecafluorodecyltrimethoxysilane as the preferred fluorosilane in the coating compositions or the spray coating for forming the films.

Hasegawa et al teach the use of fluoroalkylsilanes such as heptadecafluorodecyltrimethoxysilane in the coating solutions and coating the films by spray coating the solution,

The disclosure by Hasegawa on the composition, method and films are set forth as above in the Rejection-2.

It would have been obvious to an ordinary skilled artisan in the art to make modifications to the composition of Hokazono by varying the composition and ratio of alkoxysilanes in the coating compositions based on the needs of the application to benefit from improved adhesion and transmittance of light, because Hokazono is suggestive of such modifications and further improvise with the teachings of Hasegawa by optionally including heptadecafluorodecyltrimethoxysilane in the composition to benefit from improved resistance to moisture, because all the teachings are in the analogous art and with the expectation of reasonable success in obviously arriving at the limitations of instant claims by the applicants.

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*Allowable Subject Matter*

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- Claims 9-10, 17, 22, 25-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record neither teaches nor suggestive of the composition and the non-continuous layer meeting the limitations of the instant claims by the applicants.



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*Conclusion*

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- The prior art or the state of art made of record and not relied upon is considered pertinent to applicant's disclosure: Kayanoki (US Patent 5,858,077) and Yamaya et al (US Pub # 2003/0087102).
- Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kallambella Vijayakumar whose telephone number is 571-272-1324. The examiner can normally be reached on M-Th, 07.00 - 16.30 hrs, Alt. Fri: 07.00-15.30 hrs.
- If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.
- Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

kmv  
June 16, 2004.

  
**Mark Kopec**  
**Primary Examiner**